

## CLAIMS

1. An image forming apparatus for forming images, comprising:  
an image bearing member for bearing a latent image; and

5 a plurality of attach/detach sections to and from which developing units can be attached and detached, each developing unit containing a developer and being adapted to develop the latent image using the developer;

10 wherein, in a state where a plurality of the developing units which contain developer of mutually differing colors are respectively attached to the plurality of attach/detach sections, the image forming apparatus is usable as a color image forming apparatus for forming a color image by developing the latent image borne by the image bearing member using the developer contained in the attached developing units;

15 wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by  
20 the image bearing member using the developer which is contained in those developing units;

25 wherein by moving one of the developing units attached to the plurality of attach/detach sections to a predetermined attach/detach position, the moved developing unit is replaceable with another developing unit which has not been attached; and

30 wherein the timing for moving a predetermined developing unit to the attach/detach position when an event occurs in which development cannot be performed by the predetermined developing unit is different for when the image forming apparatus is being used as the color image forming apparatus and for when the image forming apparatus is being used as the monochrome image forming apparatus.

2. An image forming apparatus according to claim 1, comprising:

35 an image-forming section for forming an image on a medium by developing the latent image; and

a controller for causing the image-forming section to form the image;

wherein a medium-unit job in which the image-forming section forms an image on a single medium is generated by

5           the controller suitably outputting, to the image-forming section, a request for requesting formation of an image on a single medium, and

          the image-forming section outputting, to the controller, an acceptance response indicating that the request has been  
10           accepted, if image formation is possible; and

          wherein the timing for moving the predetermined developing unit to the attach/detach position when the image forming apparatus is being used as the color image forming apparatus comes after forming the image according to the medium-unit job which has already been generated when  
15           an event occurs in which development cannot be performed by the predetermined developing unit.

3.    An image forming apparatus according to claim 1, wherein:

          formation of an image is started when the controller accepts an  
20           image-formation job that causes generation of at least one medium-unit job; and

          in a case where an other developing unit with which development can be performed and which contains developer of the same color as the developer contained in the predetermined developing unit is attached to  
25           any of the plurality of attach/detach sections when an event occurs in which development cannot be performed by the predetermined developing unit,

          the timing for moving the predetermined developing unit to the attach/detach position when the image forming apparatus is being  
30           used as a monochrome image forming apparatus comes after moving the other developing unit, with which development can be performed, to a developing position and forming images based on all the medium-unit jobs generated by the image-forming job using the moved developing unit.

4. An image forming apparatus according to claim 1, wherein:

in a case where an event occurs in which development cannot be performed with any of the attached developing units when the image forming apparatus is being used as the monochrome image forming apparatus,

the developing units in which the event of not being able to perform development has occurred are moved to the attach/detach position after forming images based on the medium-unit jobs already generated.

5. An image forming apparatus according to claim 2, wherein:

an event in which development cannot be performed by the predetermined developing unit means that a remaining amount of developer contained in the predetermined developing unit is equal to or below a predetermined amount;

the controller acquires, from the image-forming section, remaining amount information indicating the remaining amount of developer contained in the attached developing units and is able to determine, based on the acquired remaining amount information, whether or not the remaining amount of developer contained in the developing units is equal to or below the predetermined amount; and

in a case where the controller determines that the remaining amount of developer in any of the attached developing units is equal to or below the predetermined amount when the image forming apparatus is being used as a color image forming apparatus,

the controller does not output the request to the image-forming section.

6. An image forming apparatus according to claim 5, wherein:

in a case where the remaining amount of developer in the predetermined developing unit is equal to or below the predetermined amount and an other developing unit with which development can be performed and which contains developer of the same color as the developer contained in the predetermined developing unit is attached to any of the plurality of attach/detach sections when the image forming apparatus is being used as a monochrome image forming apparatus,

the controller outputs the request to the image-forming section.

7. An image forming apparatus according to claim 2, wherein:

each of the developing units is provided with a rotatably-supported  
5 developer-bearing roller for bearing the developer;

an event in which development cannot be performed by the  
predetermined developing unit means that a rotation time of the  
developer-bearing roller provided to the predetermined developing unit  
is equal to or longer than a predetermined time;

10 the controller acquires rotation information which indicates the  
rotation time of the developer-bearing rollers of the attached developing  
units and is able to determine whether or not the rotation time of the  
developer-bearing rollers of the developing units is equal to or longer  
than the predetermined time based on the acquired rotation information;

15 and

in a case where the controller determines that the rotation time  
of the developer-bearing rollers of any of the attached developing units  
is equal to or longer than the predetermined time when the image forming  
apparatus is being used as a color image forming apparatus,

20 the controller does not output the request to the image-forming  
section.

8. An image forming apparatus according to claim 7, wherein:

in a case where the rotation time of the developer-bearing roller  
25 of the predetermined developing unit is equal to or longer than the  
predetermined time and an other developing unit with which development  
can be performed and which contains developer of the same color as the  
developer contained in the predetermined developing unit is attached to  
any of the plurality of attach/detach sections when the image forming  
30 apparatus is being used as a monochrome image forming apparatus,

the controller outputs the request to the image-forming section.

9. An image forming apparatus for forming images, comprising:

an image bearing member for bearing a latent image;

35 a plurality of attach/detach sections to and from which developing

units can be attached and detached, each developing unit containing a developer and being adapted to develop the latent image using the developer;

an image-forming section for forming an image on a medium by  
5 developing the latent image; and

a controller for causing the image-forming section to form the image;

wherein each of the developing units is provided with a rotatably-supported developer-bearing roller for bearing the developer;

10 wherein the controller acquires rotation information which indicates a rotation time of the developer-bearing rollers of the attached developing units and is able to determine whether or not the rotation time of the developer-bearing rollers of the developing units is equal to or longer than a predetermined time based on the acquired rotation  
15 information;

wherein the controller acquires, from the image-forming section, remaining amount information indicating a remaining amount of developer contained in the attached developing units and is able to determine, based on the acquired remaining amount information, whether or not the remaining  
20 amount of developer contained in the developing units is equal to or below a predetermined amount;

wherein a medium-unit job in which the image-forming section forms an image on a single medium is generated by

the controller suitably outputting, to the image-forming  
25 section, a request for requesting formation of an image on a single medium, and

the image-forming section outputting, to the controller, an acceptance response indicating that the request has been accepted, if image formation is possible;

30 wherein formation of an image is started when the controller accepts an image-formation job that causes generation of at least one medium-unit job;

wherein, in a state where a plurality of the developing units which contain developer of mutually differing colors are respectively attached  
35 to the plurality of attach/detach sections, the image forming apparatus

is usable as a color image forming apparatus for forming a color image by developing the latent image borne by the image bearing member using the developer contained in the attached developing units;

wherein, in a state where the developing units which contain  
5 developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those  
10 developing units;

wherein by moving one of the developing units attached to the plurality of attach/detach sections to a predetermined attach/detach position, the moved developing unit is replaceable with another developing unit which has not been attached;

15 wherein in a case where the image forming apparatus is being used as the color image forming apparatus,

if the controller determines, as an event in which development cannot be performed by a predetermined developing unit, that the remaining amount of developer in any of the attached  
20 developing units is equal to or below the predetermined amount, and determines that the rotation time of the developer-bearing rollers of any of the attached developing units is equal to or longer than the predetermined time,  
then the controller does not output the request to the image-forming  
25 section, and

when an event in which development cannot be performed by the predetermined developing unit occurs, the timing for moving the predetermined developing unit to the attach/detach position comes after forming an image according to the medium-unit job which  
30 has already been generated when the event has occurred; and  
wherein in a case where the image forming apparatus is being used as the monochrome image forming apparatus,

if an other developing unit with which development can be performed and which contains developer of the same color as the  
35 developer contained in the predetermined developing unit is

attached to any of the plurality of attach/detach sections when the controller determines, as the event in which development cannot be performed by the predetermined developing unit, that the remaining amount of developer in any of the attached developing units is equal to or below the predetermined amount, and determines that the rotation time of the developer-bearing rollers of any of the attached developing units is equal to or longer than the predetermined time,

then the controller outputs the request to the image-forming section,

when an event occurs in which development cannot be performed by the predetermined developing unit, the other developing unit, with which development can be performed, is moved to a position of the predetermined developing unit and images are formed according to all the medium-unit jobs generated by the image-forming job using the moved developing unit, and

the timing for moving the predetermined developing unit to the attach/detach position is after forming images based on the medium-unit jobs which have already been generated when an event occurs in which development cannot be performed with any of the attached developing units.

10. A computer-readable medium for making an image forming apparatus operate, the image forming apparatus including:

an image bearing member for bearing a latent image; and  
a plurality of attach/detach sections to and from which developing units can be attached and detached, each developing unit containing a developer and being adapted to develop the latent image using the developer;

wherein, in a state where a plurality of the developing units which contain developer of mutually differing colors are respectively attached to the plurality of attach/detach sections, the image forming apparatus is usable as a color image forming apparatus for forming a color image by developing the latent image borne by the image bearing member using the developer contained

in the attached developing units;

wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those developing units; and

wherein by moving one of the developing units attached to the plurality of attach/detach sections to a predetermined attach/detach position, the moved developing unit is replaceable with another developing unit which has not been attached; the computer-readable medium comprising:

a code for moving, in a case where the image forming apparatus is being used as the color image forming apparatus, a predetermined developing unit to the attach/detach position at a predetermined timing when an event occurs in which development cannot be performed by the predetermined developing unit; and

a code for moving, in a case where the image forming apparatus is being used as the monochrome image forming apparatus, the predetermined developing unit to the attach/detach position at a timing different from the predetermined timing when an event occurs in which development cannot be performed by the predetermined developing unit.

11. An image forming system comprising:

(a) a computer; and

(b) an image forming apparatus for forming images and being connected to the computer, the image forming apparatus including:

an image bearing member for bearing a latent image; and

a plurality of attach/detach sections to and from which developing units can be attached and detached, each developing unit containing a developer and being adapted to develop the latent image using the developer;

wherein, in a state where a plurality of the developing units which contain developer of mutually differing colors are



respectively attached to the plurality of attach/detach sections, the image forming apparatus is usable as a color image forming apparatus for forming a color image by developing the latent image borne by the image bearing member using the developer contained in the attached developing units;

wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those developing units;

wherein by moving one of the developing units attached to the plurality of attach/detach sections to a predetermined attach/detach position, the moved developing unit is replaceable with another developing unit which has not been attached; and

wherein the timing for moving a predetermined developing unit to the attach/detach position when an event occurs in which development cannot be performed by the predetermined developing unit is different for when the image forming apparatus is being used as the color image forming apparatus and for when the image forming apparatus is being used as the monochrome image forming apparatus..

12. An image forming method which uses an image forming apparatus for forming images, comprising:

(a) in a case where the image forming apparatus is being used as a color image forming apparatus for forming a color image by developing a latent image using developer contained in attached developing units in a state where a plurality of developing units for containing developer of mutually differing colors and developing the latent image borne by an image bearing member using the developer are respectively attached to a plurality of attach/detach sections to and from which the developing units can be attached and detached,

a step of moving, at a predetermined timing, one developing unit

from among the developing units which are attached to the plurality of attach/detach sections to a predetermined attach/detach position where the developing unit can be replaced with another developing unit which has not been attached, when an event occurs in which development cannot be performed by a predetermined developing unit; and

(b) in a case where the image forming apparatus is being used as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using developer contained in the developing units in a state where the developing units containing developer of the same color are attached to at least two attach/detach sections of the plurality of attach/detach sections, a step of moving, at a timing different from that for when the image forming apparatus is being used as the color image forming apparatus, one developing unit from among the developing units which are attached to the plurality of attach/detach sections to the attach/detach position, when an event occurs in which development cannot be performed by the predetermined developing unit.

13. An image forming apparatus for forming images, comprising:  
an image bearing member for bearing a latent image;  
a plurality of attach/detach sections to and from which developing units can be attached and detached, each developing unit containing a developer and being adapted to develop the latent image using the developer; and

an announcing section for announcing information indicating an event when an event requiring announcement occurs;

wherein, in a state where a plurality of the developing units which contain developer of mutually differing colors are respectively attached to the plurality of attach/detach sections, the image forming apparatus is usable as a color image forming apparatus for forming a color image by developing the latent image borne by the image bearing member using the developer contained in the attached developing units;

wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the

attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those  
5 developing units; and

wherein a timing for announcing, through the announcing section, information indicating an event when an event occurs in which development cannot be performed by the predetermined developing unit is different for when the image forming apparatus is being used as the color image  
10 forming apparatus and for when the image forming apparatus is being used as the monochrome image forming apparatus.

14. An image forming apparatus according to claim 13, wherein:

the information indicating the event is information urging that  
15 the predetermined developing unit be replaced with another developing unit which has not been attached.

15. An image forming apparatus according to claim 13, comprising:

an image-forming section for forming an image on a medium by  
20 developing the latent image; and

a controller for causing the image-forming section to form the image;

wherein a medium-unit job in which the image-forming section forms an image on a single medium is generated by

25 the controller suitably outputting, to the image-forming section, a request for requesting formation of an image on a single medium, and

the image-forming section outputting, to the controller, an acceptance response indicating that the request has been  
30 accepted, if image formation is possible; and

wherein the timing for announcing the information indicating the event through the announcing section when the image forming apparatus is being used as the color image forming apparatus comes after forming the image according to the medium-unit job which has already been generated  
35 when an event occurs in which development cannot be performed by the

predetermined developing unit.

16. An image forming apparatus according to claim 13, wherein:

formation of an image is started when the controller accepts an  
5 image-formation job that causes generation of at least one medium-unit  
job; and

in a case where an other developing unit with which development  
can be performed and which contains developer of the same color as the  
developer contained in the predetermined developing unit is attached to  
10 any of the plurality of attach/detach sections when an event occurs in  
which development cannot be performed by the predetermined developing  
unit,

the timing for announcing the information indicating the event  
through the announcing section when the image forming apparatus  
15 is being used as a monochrome image forming apparatus comes after  
moving the other developing unit, with which development can be  
performed, to a position of the predetermined developing unit and  
forming images based on all the medium-unit jobs generated by the  
image-forming job using the moved developing unit.

20 17. An image forming apparatus according to claim 16, wherein:

in a case where an event occurs in which development cannot be  
performed with any of the attached developing units when the image forming  
apparatus is being used as the monochrome image forming apparatus,

25 the information indicating the event is announced through the  
announcing section after forming images based on the medium-unit  
jobs already generated.

18. An image forming apparatus according to claim 15, wherein:

30 an event in which development cannot be performed by the  
predetermined developing unit means that a remaining amount of developer  
contained in the predetermined developing unit is equal to or below a  
predetermined amount;

the controller acquires, from the image-forming section, remaining  
35 amount information indicating the remaining amount of developer contained

in the attached developing units and is able to determine, based on the acquired remaining amount information, whether or not the remaining amount of developer contained in the developing units is equal to or below the predetermined amount; and

5           in a case where the controller determines that the remaining amount of developer in any of the attached developing units is equal to or below the predetermined amount when the image forming apparatus is being used as a color image forming apparatus,

10           the controller does not output the request to the image-forming section.

19.   An image forming apparatus according to claim 18, wherein:

15           in a case where the remaining amount of developer in the predetermined developing unit is equal to or below the predetermined amount and an other developing unit with which development can be performed and which contains developer of the same color as the developer contained in the predetermined developing unit is attached to any of the plurality of attach/detach sections when the image forming apparatus is being used as a monochrome image forming apparatus,

20           the controller outputs the request to the image-forming section.

20.   An image forming apparatus according to claim 15, wherein:

          each of the developing units is provided with a rotatably-supported developer-bearing roller for bearing the developer;

25           an event in which development cannot be performed by the predetermined developing unit means that a rotation time of the developer-bearing roller provided to the predetermined developing unit is equal to or longer than a predetermined time;

30           the controller acquires rotation information which indicates the rotation time of the developer-bearing rollers of the attached developing units and is able to determine whether or not the rotation time of the developer-bearing rollers of the developing units is equal to or longer than the predetermined time based on the acquired rotation information; and

35           in a case where the controller determines that the rotation time

of the developer-bearing rollers of any of the attached developing units is equal to or longer than the predetermined time when the image forming apparatus is being used as a color image forming apparatus,

the controller does not output the request to the image-forming section.

21. An image forming apparatus according to claim 20, wherein:

in a case where the rotation time of the developer-bearing roller of the predetermined developing unit is equal to or longer than the predetermined time and an other developing unit with which development can be performed and which contains developer of the same color as the developer contained in the predetermined developing unit is attached to any of the plurality of attach/detach sections when the image forming apparatus is being used as a monochrome image forming apparatus,

the controller outputs the request to the image-forming section.

22. An image forming apparatus for forming images, comprising:

an image bearing member for bearing a latent image;

a plurality of attach/detach sections to and from which developing units can be attached and detached, each developing unit containing a developer and being adapted to develop the latent image using the developer;

an image-forming section for forming an image on a medium by developing the latent image;

a controller for causing the image-forming section to form the image; and

an announcing section for announcing information indicating an event when an event requiring announcement occurs;

wherein each of the developing units is provided with a rotatably-supported developer-bearing roller for bearing the developer;

wherein the controller acquires, from the image-forming section, remaining amount information indicating a remaining amount of developer contained in the attached developing units and is able to determine, based on the acquired remaining amount information, whether or not the remaining amount of developer contained in the developing units is equal to or below

a predetermined amount;

wherein the controller acquires rotation information which indicates a rotation time of the developer-bearing rollers of the attached developing units and is able to determine whether or not the rotation  
5 time of the developer-bearing rollers of the developing units is equal to or longer than a predetermined time based on the acquired rotation information;

wherein a medium-unit job in which the image-forming section forms an image on a single medium is generated by

10 the controller suitably outputting, to the image-forming section, a request for requesting formation of an image on a single medium, and

the image-forming section outputting, to the controller, an acceptance response indicating that the request has been  
15 accepted, if image formation is possible;

wherein formation of an image is started when the controller accepts an image-formation job that causes generation of at least one medium-unit job;

wherein, in a state where a plurality of the developing units which  
20 contain developer of mutually differing colors are respectively attached to the plurality of attach/detach sections, the image forming apparatus is usable as a color image forming apparatus for forming a color image by developing the latent image borne by the image bearing member using the developer contained in the attached developing units;

25 wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by  
30 the image bearing member using the developer which is contained in those developing units;

wherein in a case where the image forming apparatus is being used as the color image forming apparatus,

if the controller determines, as an event in which  
35 development cannot be performed by a predetermined developing unit,

that the remaining amount of developer in any of the attached developing units is equal to or below the predetermined amount, and the image-forming section determines that the rotation time of the developer-bearing rollers of any of the attached developing units is equal to or longer than the predetermined time, then the controller does not output the request to the image-forming section, and

when an event in which development cannot be performed by the predetermined developing unit occurs, the information indicating the event is announced through the announcing section after forming an image according to the medium-unit job which has already been generated; and

wherein in a case where the image forming apparatus is being used as a monochrome image forming apparatus,

if an other developing unit with which development can be performed and which contains developer of the same color as the developer contained in the predetermined developing unit is attached to any of the plurality of attach/detach sections when the event in which development cannot be performed by the predetermined developing unit occurs due to the remaining amount of developer in the predetermined developing unit being equal to or below the predetermined amount, and when the event in which development cannot be performed by the predetermined developing unit occurs due to the rotation time of the developer-bearing roller of the predetermined developing unit being equal to or longer than the predetermined time, then the controller outputs the request to the image-forming section, and

when an event occurs in which development cannot be performed by the predetermined developing unit, the information indicating the event is announced through the announcing section after moving the other developing unit, with which development can be performed, to a position of the predetermined developing unit and forming images according to all the medium-unit jobs generated by the image-forming job using the moved developing unit.



23. A computer-readable medium for making an image forming apparatus operate, the image forming apparatus including:

an image bearing member for bearing a latent image;

5 a plurality of attach/detach sections to and from which developing units can be attached and detached, each developing unit containing a developer and being adapted to develop the latent image using the developer; and

10 an announcing section for announcing information indicating an event when an event requiring announcement occurs;

wherein, in a state where a plurality of the developing units which contain developer of mutually differing colors are respectively attached to the plurality of attach/detach sections, the image forming apparatus is usable as a color image forming apparatus for forming a color image by developing the latent image borne by the image bearing member using the developer contained in the attached developing units; and

15 wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those developing units;

20 the computer-readable medium comprising:

25 a code for announcing, when an event occurs in which development cannot be performed by a predetermined developing unit, information indicating the event through the announcing section at a predetermined timing in a case where the image forming apparatus is being used as the color image forming apparatus; and

30 a code for announcing, when an event occurs in which development cannot be performed by the predetermined developing unit, information indicating the event through the announcing section at a timing different from the predetermined timing in a case where the image forming apparatus is being used as the monochrome image forming apparatus.

24. An image forming system comprising:

(a) a computer body; and

(b) an image forming apparatus for forming images and being  
5 connected to the computer, the image forming apparatus including:

an image bearing member for bearing a latent image;

a plurality of attach/detach sections to and from which  
developing units can be attached and detached, each developing unit  
containing a developer and being adapted to develop the latent image  
10 using the developer; and

an announcing section for announcing information indicating  
an event when an event requiring announcement occurs;

wherein, in a state where a plurality of the developing units  
which contain developer of mutually differing colors are  
15 respectively attached to the plurality of attach/detach sections,  
the image forming apparatus is usable as a color image forming  
apparatus for forming a color image by developing the latent image  
borne by the image bearing member using the developer contained  
in the attached developing units;

20 wherein, in a state where the developing units which contain  
developer of the same color are attached to at least two of the  
attach/detach sections of the plurality of attach/detach sections,  
the image forming apparatus is usable as a monochrome image forming  
apparatus for forming a monochrome image by developing the latent  
25 image borne by the image bearing member using the developer which  
is contained in those developing units; and

wherein a timing for announcing, through the announcing  
section, information indicating an event when an event occurs in  
which development cannot be performed by the predetermined  
30 developing unit is different for when the image forming apparatus  
is being used as the color image forming apparatus and for when  
the image forming apparatus is being used as the monochrome image  
forming apparatus.

35 25. An image forming method which uses an image forming apparatus for

forming images, comprising:

(a) in a case where the image forming apparatus is being used as a color image forming apparatus for forming a color image by developing a latent image using developer contained in attached developing units  
 5 in a state where a plurality of developing units for containing developer of mutually differing colors and developing the latent image borne by an image bearing member using the developer are respectively attached to a plurality of attach/detach sections to and from which the developing units can be attached and detached;

10 a step of announcing, at a predetermined timing, information indicating an event through the announcing section, when an event occurs in which development cannot be performed by a predetermined developing unit; and

(b) in a case where the image forming apparatus is being used as  
 15 a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using developer contained in the developing units in a state where the developing units containing developer of the same color are attached to at least two attach/detach sections of the plurality of attach/detach sections,

20 a step of announcing, at a timing different from that for when the image forming apparatus is being used as the color image forming apparatus, information indicating an event through the announcing section, when an event occurs in which development cannot be performed by the predetermined developing unit.

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26. An image forming apparatus for forming images, comprising:

an image bearing member for bearing a latent image; and

a plurality of attach/detach sections to and from which developing units can be attached and detached, each developing unit containing a  
 30 developer and being adapted to develop the latent image using the developer;

wherein, in a state where a plurality of the developing units which contain developer of mutually differing colors are respectively attached to the plurality of attach/detach sections, the image forming apparatus  
 35 is usable as a color image forming apparatus for forming a color image

by developing the latent image borne by the image bearing member using the developer contained in the attached developing units;

wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those developing units;

wherein by moving one of the developing units attached to the plurality of attach/detach sections to a predetermined attach/detach position, the moved developing unit is replaceable with another developing unit which has not been attached; and

wherein an operation for moving a predetermined developing unit to the attach/detach position when an event occurs in which development cannot be performed by the predetermined developing unit is different for when the image forming apparatus is being used as the color image forming apparatus and for when the image forming apparatus is being used as the monochrome image forming apparatus.

27. An image forming apparatus according to claim 26, comprising:  
an image-forming section for forming an image on a medium by developing the latent image; and

a controller for causing the image-forming section to form the image;

wherein a medium-unit job in which the image-forming section forms an image on a single medium is generated by

the controller suitably outputting, to the image-forming section, a request for requesting formation of an image on a single medium, and

the image-forming section outputting, to the controller, an acceptance response indicating that the request has been accepted, if image formation is possible; and

wherein, when the image forming apparatus is being used as the color image forming apparatus, the predetermined developing unit is moved to

the attach/detach position after forming the image according to the medium-unit job which has already been generated when an event occurs in which development cannot be performed by the predetermined developing unit.

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28. An image forming apparatus according to claim 26, wherein:

formation of an image is started when the controller accepts an image-formation job that causes generation of at least one medium-unit job; and

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in a case where the image forming apparatus is being used as a monochrome image forming apparatus and an other developing unit with which development can be performed and which contains developer of the same color as the developer contained in the predetermined developing unit is attached to any of the plurality of attach/detach sections when an event occurs in which development cannot be performed by the predetermined developing unit,

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the predetermined developing unit is moved to the attach/detach position after moving the other developing unit, with which development can be performed, to a developing position and forming images based on all the medium-unit jobs generated by the image-forming job using the moved developing unit.

20

29. An image forming apparatus according to claim 26, wherein:

in a case where an event occurs in which development cannot be performed with any of the attached developing units when the image forming apparatus is being used as the monochrome image forming apparatus,

25

the developing units in which the event of not being able to perform development has occurred are moved to the attach/detach position after forming images based on the medium-unit jobs already generated.

30

30. An image forming apparatus according to claim 27, wherein:

an event in which development cannot be performed by the predetermined developing unit means that a remaining amount of developer contained in the predetermined developing unit is equal to or below a

35

predetermined amount;

the controller acquires, from the image-forming section, remaining amount information indicating the remaining amount of developer contained in the attached developing units and is able to determine, based on the  
5 acquired remaining amount information, whether or not the remaining amount of developer contained in the developing units is equal to or below the predetermined amount; and

in a case where the controller determines that the remaining amount of developer in any of the attached developing units is equal to or below  
10 the predetermined amount when the image forming apparatus is being used as a color image forming apparatus,

the controller does not output the request to the image-forming section.

15 31. An image forming apparatus according to claim 30, wherein:

in a case where the remaining amount of developer in the predetermined developing unit is equal to or below the predetermined amount and an other developing unit with which development can be performed and which contains developer of the same color as the developer contained  
20 in the predetermined developing unit is attached to any of the plurality of attach/detach sections when the image forming apparatus is being used as a monochrome image forming apparatus,

the controller outputs the request to the image-forming section.

25 32. An image forming apparatus according to claim 27, wherein:

each of the developing units is provided with a rotatably-supported developer-bearing roller for bearing the developer;

an event in which development cannot be performed by the predetermined developing unit means that a rotation time of the  
30 developer-bearing roller provided to the predetermined developing unit is equal to or longer than a predetermined time;

the controller acquires rotation information which indicates the rotation time of the developer-bearing rollers of the attached developing units and is able to determine whether or not the rotation time of the  
35 developer-bearing rollers of the developing units is equal to or longer

than the predetermined time based on the acquired rotation information;  
and

in a case where the controller determines that the rotation time  
of the developer-bearing rollers of any of the attached developing units  
5 is equal to or longer than the predetermined time when the image forming  
apparatus is being used as a color image forming apparatus,  
the controller does not output the request to the image-forming  
section.

10 33. An image forming apparatus according to claim 32, wherein:

in a case where the rotation time of the developer-bearing roller  
of the predetermined developing unit is equal to or longer than the  
predetermined time and an other developing unit with which development  
can be performed and which contains developer of the same color as the  
15 developer contained in the predetermined developing unit is attached to  
any of the plurality of attach/detach sections when the image forming  
apparatus is being used as a monochrome image forming apparatus,  
the controller outputs the request to the image-forming section.

20 34. An image forming apparatus for forming images, comprising:  
an image bearing member for bearing a latent image;

a plurality of attach/detach sections to and from which developing  
units can be attached and detached, each developing unit containing a  
developer and being adapted to develop the latent image using the  
25 developer;

an image-forming section for forming an image on a medium by  
developing the latent image; and

a controller for causing the image-forming section to form the  
image;

30 wherein each of the developing units is provided with a  
rotatably-supported developer-bearing roller for bearing the developer;

wherein the controller acquires, from the image-forming section,  
remaining amount information indicating a remaining amount of developer  
contained in the attached developing units and is able to determine, based  
35 on the acquired remaining amount information, whether or not the remaining

amount of developer contained in the developing units is equal to or below a predetermined amount;

wherein the controller acquires rotation information which indicates a rotation time of the developer-bearing rollers of the attached  
5 developing units and is able to determine whether or not the rotation time of the developer-bearing rollers of the developing units is equal to or longer than a predetermined time based on the acquired rotation information;

wherein a medium-unit job in which the image-forming section forms  
10 an image on a single medium is generated by

the controller suitably outputting, to the image-forming section, a request for requesting formation of an image on a single medium, and

the image-forming section outputting, to the controller,  
15 an acceptance response indicating that the request has been accepted, if image formation is possible;

wherein formation of an image is started when the controller accepts an image-formation job that causes generation of at least one medium-unit job;

20 wherein, in a state where a plurality of the developing units which contain developer of mutually differing colors are respectively attached to the plurality of attach/detach sections, the image forming apparatus is usable as a color image forming apparatus for forming a color image by developing the latent image borne by the image bearing member using  
25 the developer contained in the attached developing units;

wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus  
30 for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those developing units;

wherein by moving one of the developing units attached to the plurality of attach/detach sections to a predetermined attach/detach  
35 position, the moved developing unit is replaceable with another



developing unit which has not been attached;

wherein in a case where the image forming apparatus is being used as the color image forming apparatus,

if the controller determines, as an event in which  
5 development cannot be performed by a predetermined developing unit,  
that the remaining amount of developer in any of the attached  
developing units is equal to or below the predetermined amount,  
and determines that the rotation time of the developer-bearing  
rollers of any of the attached developing units is equal to or longer  
10 than the predetermined time,  
then the controller does not output the request to the image-forming  
section, and

when an event in which development cannot be performed by  
the predetermined developing unit occurs, the predetermined  
15 developing unit is moved to the attach/detach position after  
forming an image according to the medium-unit job which has already  
been generated; and

wherein in a case where the image forming apparatus is being used as a monochrome image forming apparatus,

20 if an other developing unit with which development can be  
performed and which contains developer of the same color as the  
developer contained in the predetermined developing unit is  
attached to any of the plurality of attach/detach sections when  
the event in which development cannot be performed by the  
25 predetermined developing unit occurs due to the remaining amount  
of developer in the predetermined developing unit being equal to  
or below the predetermined amount, and when the event in which  
development cannot be performed by the predetermined developing  
unit occurs due to the rotation time of the developer-bearing roller  
30 of the predetermined developing unit being equal to or longer than  
the predetermined time,  
then the controller outputs the request to the image-forming  
section, and

when an event occurs in which development cannot be performed  
35 by the predetermined developing unit, the predetermined developing

unit is moved to the attach/detach position after moving the other developing unit, with which development can be performed, to a position of the predetermined developing unit and forming images according to all the medium-unit jobs generated by the image-forming job using the moved developing unit.

35. A computer-readable medium for making an image forming apparatus operate, the image forming apparatus including:

an image bearing member for bearing a latent image; and  
a plurality of attach/detach sections to and from which developing units can be attached and detached, each developing unit containing a developer and being adapted to develop the latent image using the developer;

wherein, in a state where a plurality of the developing units which contain developer of mutually differing colors are respectively attached to the plurality of attach/detach sections, the image forming apparatus is usable as a color image forming apparatus for forming a color image by developing the latent image borne by the image bearing member using the developer contained in the attached developing units;

wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those developing units; and

wherein by moving one of the developing units attached to the plurality of attach/detach sections to a predetermined attach/detach position, the moved developing unit is replaceable with another developing unit which has not been attached;  
the computer-readable medium comprising:

a code for executing, in a case where the image forming apparatus is being used as the color image forming apparatus, an operation of moving a predetermined developing unit to the attach/detach position when an

event occurs in which development cannot be performed by the predetermined developing unit; and

a code for moving, in a case where the image forming apparatus is being used as the monochrome image forming apparatus, the predetermined  
5 developing unit to the attach/detach position according to an operation different from the above-mentioned operation of moving the predetermined developing unit to the attach/detach position when an event occurs in which development cannot be performed by the predetermined developing unit.

10

36. An image forming system comprising:

(a) a computer; and

(b) an image forming apparatus for forming images and being connected to the computer, the image forming apparatus including:

15

an image bearing member for bearing a latent image; and

a plurality of attach/detach sections to and from which developing units can be attached and detached, each developing unit containing a developer and being adapted to develop the latent image using the developer;

20

wherein, in a state where a plurality of the developing units which contain developer of mutually differing colors are respectively attached to the plurality of attach/detach sections, the image forming apparatus is usable as a color image forming apparatus for forming a color image by developing the latent image borne by the image bearing member using the developer contained  
25 in the attached developing units;

30

wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those developing units;

35

wherein by moving one of the developing units attached to the plurality of attach/detach sections to a predetermined

attach/detach position, the moved developing unit is replaceable with another developing unit which has not been attached; and

wherein an operation for moving a predetermined developing unit to the attach/detach position when an event occurs in which development cannot be performed by the predetermined developing unit is different for when the image forming apparatus is being used as the color image forming apparatus and for when the image forming apparatus is being used as the monochrome image forming apparatus.

37. An image forming system comprising:

(a) a computer; and

(b) an image forming apparatus for forming images and being connected to the computer, the image forming apparatus including:

an image bearing member for bearing a latent image; and

a plurality of attach/detach sections to and from which developing units can be attached and detached, each developing unit containing a developer and being adapted to develop the latent image using the developer;

wherein, in a state where a plurality of the developing units which contain developer of mutually differing colors are respectively attached to the plurality of attach/detach sections, the image forming apparatus is usable as a color image forming apparatus for forming a color image by developing the latent image borne by the image bearing member using the developer contained in the attached developing units;

wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those developing units;

wherein by moving one of the developing units attached to the plurality of attach/detach sections to a predetermined

attach/detach position, the moved developing unit is replaceable with another developing unit which has not been attached; and

wherein an operation for moving a predetermined developing unit to the attach/detach position when an event occurs in which development cannot be performed by the predetermined developing unit is different for when the image forming apparatus is being used as the color image forming apparatus and for when the image forming apparatus is being used as the monochrome image forming apparatus.

38. An image forming apparatus for forming images, comprising:  
an image bearing member for bearing a latent image; and  
a plurality of attach/detach sections to and from which developing units can be attached and detached, each developing unit containing a developer and being adapted to develop the latent image using the developer;

wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those developing units;

wherein a predetermined operation is executed based on information indicating a state of the developing unit; and

wherein the predetermined operation is executed when an event in which all of the attached developing units have entered a predetermined state is detected based on the information, when the image forming apparatus is being used as the monochrome image forming apparatus.

39. An image forming apparatus according to claim 38, comprising:  
an image-forming section for forming an image on a medium by developing the latent image; and

a controller for causing the image-forming section to form the image;

wherein a medium-unit job in which the image-forming section forms an image on a single medium is generated by

the controller suitably outputting, to the image-forming section, a request for requesting formation of an image on a single medium, and

the image-forming section outputting, to the controller, an acceptance response indicating that the request has been accepted, if image formation is possible; and

wherein the predetermined operation is executed after forming the image according to the medium-unit job which has already been generated at the time of detection of the event of entering the predetermined state.

40. An image forming apparatus according to claim 38, wherein:

the predetermined state is a state of not being able to perform development with the developing unit.

41. An image forming apparatus according to claim 40, wherein:

the state of not being able to perform development is when a remaining amount of developer contained in the developing unit is equal to or below a predetermined amount.

42. An image forming apparatus according to claim 40, wherein:

each of the developing units is provided with a rotatably-supported developer-bearing roller for bearing the developer; and

the state of not being able to perform development is when a rotation time of the developer-bearing roller is equal to or longer than a predetermined time.

43. An image forming apparatus according to claim 39, comprising:

an announcing section for announcing information for indicating an event when an event requiring announcement occurs; and

the predetermined operation is an operation of announcing, with the announcing section, an event in which a state of not being able to perform development with the developing unit has been entered.

44. An image forming apparatus according to claim 39, wherein:

by moving, to a predetermined attach/detach position, one developing unit from among the developing units attached to the plurality of attach/detach sections, the moved developing unit can be replaced with  
5 an other developing unit which has not been attached; and

the predetermined operation is an operation of moving, to the attach/detach position, a developing unit which has entered a state of not being able to perform development.

10 45. An image forming apparatus according to claim 38, wherein:

each of the developing units can perform development after being moved to a predetermined developing position; and

in a case where a state of not being able to perform development with one of the attached developing units is entered when the image forming  
15 apparatus is being used as the monochrome image forming apparatus, an other developing unit with which development can be performed is moved to the developing position.

46. An image forming apparatus according to claim 45, wherein:

20 in a case where a plurality of the other developing units with which development can be performed are attached, the developing unit with the shortest moving distance to the developing position is moved to the developing position.

25 47. An image forming apparatus according to claim 38, wherein:

the predetermined state is a state in which a state of not being able to perform development with the developing unit should be forewarned.

48. An image forming apparatus according to claim 47, comprising:

30 an announcing section for announcing information for indicating an event when an event requiring announcement occurs;

wherein the predetermined operation is an operation of announcing with the announcing section an event in which the state, in which the state of not being able to perform development with the developing unit  
35 should be forewarned, has been entered.

49. An image forming apparatus according to claim 47, wherein:

the state of not being able to perform development is when a remaining amount of developer contained in the developing unit is equal to or below a predetermined amount.

50. An image forming apparatus for forming images, comprising:

an image bearing member for bearing a latent image;

a plurality of attach/detach sections to and from which developing units can be attached and detached, each developing unit containing a developer and being adapted to develop the latent image using the developer;

an image-forming section for forming an image on a medium by developing the latent image;

a controller for causing the image-forming section to form the image; and

an announcing section for announcing information for indicating an event when an event requiring announcement occurs;

wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those developing units;

wherein each of the developing units can perform development after being moved to a predetermined developing position;

wherein by moving, to a predetermined attach/detach position, one developing unit from among the developing units attached to the plurality of attach/detach sections, the moved developing unit can be replaced with an other developing unit which has not been attached;

wherein a medium-unit job in which the image-forming section forms an image on a single medium is generated by

the controller suitably outputting, to the image-forming section, a request for requesting formation of an image on a single



medium, and

the image-forming section outputting, to the controller, an acceptance response indicating that the request has been accepted, if image formation is possible;

5 wherein a predetermined operation is executed based on information indicating a state of the developing unit; and

wherein, in a case where the image forming apparatus is being used as the monochrome image forming apparatus:

when an event, in which a state is entered where a state  
10 that a remaining amount of developer contained in the developing units is equal to or below a predetermined amount should be forewarned, is detected, the event is announced with the announcing section,

when an event, in which the remaining amount of developer  
15 contained in any of the attached developing units has become equal to or below the predetermined amount, is detected, the developing unit with the shortest moving distance to the developing position, among other attached developing units with which development can be performed, is moved to the developing position, and

20 when an event in which the remaining amount of developer contained in all of the attached developing units has become equal to or below the predetermined amount is detected, the developing units in which the remaining amount of developer has become equal to or below the predetermined amount are moved to the attach/detach  
25 section after forming an image according to the medium-unit job which has already been generated,

based on the above-mentioned information.

51. A computer-readable medium for making an image forming apparatus  
30 operate, the image forming apparatus including:

an image bearing member for bearing a latent image; and

a plurality of attach/detach sections to and from which  
developing units can be attached and detached, each developing unit  
containing a developer and being adapted to develop the latent image  
35 using the developer;

wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those developing units;

the computer-readable medium comprising:

a code for executing, in a case where the image forming apparatus which executes a predetermined operation based on information indicating a state of the developing unit is being used as the monochrome image forming apparatus, the predetermined operation when an event in which all of the attached developing units have entered a predetermined state is detected based on the information.

52. An image forming system comprising:

(a) a computer; and

(b) an image forming apparatus for forming images and being connected to the computer, the image forming apparatus including:

an image bearing member for bearing a latent image; and

a plurality of attach/detach sections to and from which developing units can be attached and detached, each developing unit containing a developer and being adapted to develop the latent image using the developer;

wherein, in a state where the developing units which contain developer of the same color are attached to at least two of the attach/detach sections of the plurality of attach/detach sections, the image forming apparatus is usable as a monochrome image forming apparatus for forming a monochrome image by developing the latent image borne by the image bearing member using the developer which is contained in those developing units; and

wherein the image forming apparatus executes a predetermined operation based on information indicating a state of the developing unit;

wherein the predetermined operation is executed when an event in

which all of the attached developing units have entered a predetermined state is detected based on the information, when the image forming apparatus is being used as the monochrome image forming apparatus.

5 53. An image forming method which uses an image forming apparatus for forming images, comprising:

(a) in a case where the image forming apparatus is being used as a monochrome image forming apparatus for forming a monochrome image by developing a latent image borne by an image bearing member using developer  
10 contained in developing units, in a state in which the developing units which contain developer of the same color for developing the latent image borne by the image bearing member are attached to at least two attach/detach sections of a plurality of attach/detach sections to and from which the developing units for developing the latent image can be  
15 attached and detached,

a step of detecting, based on information indicating a state of the developing unit, an event in which all the attached developing units have entered a predetermined state; and

(b) a step of executing a predetermined operation when the event  
20 is detected.